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ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the signicant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample is included. (AG)

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TECHNICAL REPORT

ON

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

PSYCHIATRIC TECHNICIAN 2-42.22

B-607 S-327

TM 001 923

U. S. Employment Service
in Cooperation with
Colorado State Employment Service

December 1964

GATB # 2533

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

Psychiatric Technician 2-42.22

B- 607 S-327

Summary

The Otis Self-Administering Tests of Mental Ability and the General Aptitude Test Battery were administered to a total of 73 trainees for the occupation of Psychiatric Technician 2-42.22 at the Colorado State Hospital in Pueblo, Colorado. Training course grades were used as the final criterion. On the basis of mean scores, standard deviations, correlations with the criterion, job analysis data, and their combined selective efficiency, Aptitudes G-Intelligence, V-Verbal Aptitude, Q-Clerical Perception and K-Motor Coordination were selected for inclusion in the final norms. A correlation of .73 was obtained for the relationship between GATB Aptitude G and the Otis Self-Administering Tests of Mental Ability.

GATB Norms for Psychiatric Technician 2-42.22, B-607. S-327

B-1001			B-1002		
Aptitude	Tests	Minimum Acceptable Aptitude Score	Aptitude	Tests	Minimum Acceptable Aptitude Score
G	CB-1- H CB-1- I CB-1- J	95	G	Part 3 Part 4 Part 6	90
V	CB-1- J	100	V	Part 4	100
Q	CB-1- B	85	Q	Part 1	85
T	CB-1- G CB-1- K	80	K	Part 8	85

Effectiveness of Norms

The data in Table IV indicate that only 66 percent of the non-test-selected trainees used for this study were good trainees; if the trainees had been test-selected with the above norms, 79 percent would have been good trainees. 34 percent of the non-test-selected trainees used for this study were poor trainees; if the trainees had been test-selected with the above norms, only 21 percent would have been poor trainees.

TECHNICAL REPORT

I. Purpose

This study was conducted to determine (1) the best combination of aptitudes and minimum scores to be used on the General Aptitude Test Battery for the occupation of Psychiatric Technician 2-42.22, and (2) the relationship between GATB Aptitude G scores and scores on the Otis Self-Administering Tests of Mental Ability (Higher Examination, Form B).

II. Sample

A total of 233 individuals were recruited by local offices of the Colorado State Employment Service for employment at the Colorado State Hospital, Pueblo, Colorado. These individuals were administered the GATB and the Otis Self-Administering Tests of Mental Ability (Higher Examination, Form B) during the period December 17, 1962 through July 10, 1963. Of the 233 individuals tested, 148 entered into one of five training classes started each month from February 1963-June 1963 at the Colorado State Hospital.

Initially, 12 weeks of training is given at the Colorado State Hospital. Those trainees who exhibit above average performance in the initial training are selected to receive 24 additional weeks of training. This additional training prepares the trainees for the occupation of Psychiatric Technician 2-42.22. Those trainees whose performance is only average or below during the initial 12 weeks of training receive an additional 30 days of training in the hospital wards and are subsequently employed as Nursing Attendants.

Of the 148 individuals who entered the initial training, 137 completed the 12 week course and 85 of these trainees were selected to receive an additional 24 weeks of training to prepare them for the occupation of Psychiatric Technician 2-42.22. Seventy-three trainees completed the additional 24 weeks of training and comprise the final sample for this study.

TABLE I

Means (M), Standard Deviations (σ), Ranges, and Pearson Product-Moment Correlations with the Criterion of Final Course Grades (r), for Age and Education

N = 73	M	σ	Range	r
Age (Years)	25.3	7.5	17-52	.161
Education (Years)	12.1	.7	10-14	.045

III. Job Description

Job Title: Psychiatric Technician 2-42.22

Job Summary: Under general supervision of Ward Charge, performs a variety of sub-professional medical and psychiatric nursing duties for the care of patients in a decentralized State mental hospital. Performs related duties as required.

Work Performed: Assists with the supervision and functioning of a ward in a mental hospital. Makes certain that schedules for meals, baths, doctor's appointments, required medication, etc., are maintained. Assists patients in performing personal hygiene duties and in getting dressed. Directs or takes patient to day-room and back to his own quarters. Escorts patients from ward to dining hall and back to the ward. Has patient ready for doctor when he calls on the ward, or takes patient to designated location for appointment with doctor.

Checks each patient's record file to become acquainted with his behavior during the preceding shifts. Notes all comments made concerning patient's problems, changes in conduct, and changes (additions or deletions) in medicine prescribed. Checks ward medication cards to see that any changes in medication recorded in the patient's record file are reflected on the medication card. Places prescribed type and amount of medication for each individual patient in small paper cup(s). Places cup in space on dispensing rack and the accompanying medication card in the slot immediately behind the cup. Proceeds through ward or calls patients one at a time and dispenses the medication. Returns dispensing rack to the office. Records in each individual's record file and in the medicine log book, the type and amount of medicine and the time it was dispensed. Checks each file after doctor's visit to note any changes in prescribed medication. Makes necessary changes on ward medication cards.

Applies knowledge of mental patients' behavioral patterns acquired through training, to work with mental patients and to assist in their recovery. Conducts group therapy sessions, giving direction to the session and applying feedback, inquiry, and role-playing techniques to assist the patients to gain insight into their problems. Stimulates patients to help solve their own problems by asking them to relate the experience, expressed feeling or comments of another patient to their own problems. Encourages patients to act out some of their discussion in order to become more aware of various factors.

Makes pertinent comments in patient's record each day noting any changes in behavior, motivation, rapport, etc. Keeps alert during the shift for patients who need personal attention or medical care. Summons duty doctor to see patient in case of any abnormal physical or mental changes. Exercises extreme care that all medication and equipment are kept under proper security.

May be required to change oxygen tanks, insert nasal catheters and assist physician to set up and introduce intravenous feedings and perform other general hospital functions in addition to those basically regarded to be mental hospital functions when assigned to a medical-surgical ward.

Course Descriptions

Initial 12 weeks of training: Classroom instruction and ward assignments focus on basic nursing skills, including basic psychiatric nursing.

Classes:

Fundamentals of Nursing Interpersonal Relations Basic Psychiatric Nursing Patient Care Conferences (1 hr. per week) Introduction to Medical- Surgical Nursing (two weeks)	20 to 27.5 hours per week

Ward Assignments:

8 wks - Convalescent Psychiatric Care 2 wks - Geriatrics Nursing 2 wks - Continued Psychiatric Care	10 to 17.5 hours per week

Second 12 weeks of training: Classroom instruction and ward assignments focus on medical-surgical nursing care.

Classes:

Medical-Surgical Nursing (including diet therapy and pharmacology)	av 9 hrs. per week
Patient Care Conferences (1 hr. per week)	

Ward Assignments:

4 wks - Acute Medical Conditions (including 1 week isolation)	av 28.5 hrs. per week
4 wks - Acute Surgical Conditions	
2 wks - Medical Convalescent or Continued Care	
2 wks - Surgical Convalescent Care	

Third 12 weeks of training: Classroom instruction and ward assignments focus on advanced psychiatric nursing and ward management skills.

Classes:

Nursing Care Conferences in Psychiatric Nursing	av 10 hrs. per week
Remotivation Techniques	
Ward Managerial Skills	

Ward Assignments:

12 wks - Psychiatric Active Treatment Areas (includes practice in ward managerial skills)	av 27.6 hours per week

IV. Experimental Battery

All of the tests of the General Aptitude Test Battery, B-1002, were administered to the sample. Both Form A and Form B were used in this study. Where the subjects had taken the GATB, Form A, previously, these scores were used rather than to retest using Form B. The Otis Self-Administering Tests of Mental Ability (Higher Examination, Form B) were administered to the sample.

V. Criteria

Criterion I consisted of the average of three final course grades (Orientation; Medical Nursing; Psychiatric Nursing) given to each individual in the sample at the end of 36 weeks of training. These data were collected between December 1, 1963 and April 30, 1964. The distribution of Criterion I scores was 82.8-92.9, with a mean of 87.3 and a standard deviation of 2.2.

Criterion II consisted of two sets of independent ratings made by the first-line supervisor (Senior Psychiatric Technician or Registered Nurse) on USES Form ES-21, "Descriptive Rating Scale." These data were collected during the period April 1-July 31, 1964, at which time each Psychiatric Technician had three months of on-the-job experience subsequent to his 36 weeks of training. The rating scale consisted of nine items covering different aspects of job performance with five alternatives for each item. Weights of one through five, indicating the degree of job proficiency attained, were assigned to the alternatives. A reliability coefficient of .73 was obtained for the criterion. Therefore, the two sets of ratings were combined, resulting in a distribution of final Criterion II scores of 39-78, with a mean of 60.7 and a standard deviation of 9.1.

A Pearson product-moment correlation of .31 was obtained for the relationship between Criteria I and II. However, Criterion I correlated significantly with four of the GATB aptitudes (G, V, N, K) while Criterion II did not correlate significantly with any of the GATB aptitudes. Therefore, Criterion I was selected as the final criterion against which to establish GATB norms for the occupation of Psychiatric Technician. (Since Criterion II did not correlate with any of the GATB aptitudes, it did not disclose any information to warrant combination with Criterion I to form a multiple-hurdle criterion.)

VI. Qualitative and Quantitative Analyses

A. Qualitative Analysis

On the basis of the job analysis data, the following aptitudes were rated "important" for success in this occupation:

Intelligence (G) - Required to comprehend material presented in textbooks and lectures, and to understand and make reports.

Verbal Aptitude (V) - Required to read and understand textbooks, and to communicate with patients and other staff members.

Clerical Perception (Q) - Required to learn to read various instruments such as thermometers, oxygen gauges, sphygmomanometers, etc., and to discern the differences in labels on, and prescriptions for, medicines and drugs.

Motor Coordination (K) - Required to make eye and hand movements with speed when caring for patients who need medical and physical attention.

Manual Dexterity (M) - Required to handle and manipulate various types of diagnostic, treatment and therapy equipment.

B. Quantitative Analysis:

1. Data Analysis for Establishing GATB Norms.

TABLE II

Means (M), Standard Deviations (σ), and Pearson Product-Moment Correlations with the Criterion (r) for the Aptitudes of the GATB; N = 73

Aptitudes	M	σ	r
G-Intelligence	106.0	13.4	.433**
V-Verbal Aptitude	104.9	13.5	.561**
N-Numerical Aptitude	102.0	12.9	.302**
S-Spatial Aptitude	108.5	16.2	.080
P-Form Perception	111.5	16.5	.008
Q-Clerical Perception	106.5	12.5	.219
K-Motor Coordination	108.2	14.5	.235*
F-Finger Dexterity	104.2	20.1	.127
M-Manual Dexterity	112.0	27.4	-.033

*Significant at the .05 level
**Significant at the .01 level

TABLE III

Summary of Qualitative and Quantitative Data

Type of Evidence	Aptitudes								
	G	V	N	S	P	Q	K	F	M
Job Analysis Data									
Important	X	X				X	X		X
Irrelevant									
Relatively High Mean				X	X		X		X
Relatively Low Sigma	X	X	X			X			
Significant Correlation with Criterion	X	X	X				X		
Aptitudes to Be Considered for Trial Norms	G	V	N			Q	K		M

Trial norms consisting of various combinations of Aptitudes G, V, N, Q, K, and M with appropriate cutting scores were evaluated against the criterion by means of the Phi Coefficient technique. A comparison of the results showed that B-1002 norms consisting of G-90, V-100, Q-85 and K-85 had the best selective efficiency.

The validity of the norms was determined by computing a Phi Coefficient between the test norms and the criterion and applying the Chi Square test. The criterion was dichotomized by placing 34 percent of the sample in the low criterion group because this percent was considered to be the unsatisfactory or marginal trainees.

Table IV shows the relationship between test norms consisting of Aptitudes G, V, Q and K with critical scores of 90, 100, 85 and 85, respectively, and the dichotomized criterion for Psychiatric Technician 2-42.22. Trainees in the high criterion group have been designated as "good trainees" and those in the low criterion group as "poor trainees."

TABLE IV

Validity of Test Norms for
Psychiatric Technician 2-42.22
(G-90, V-100, Q-85, K-85)

N = 73	Non-Qualifying Test Scores	Qualifying Test Scores	Total
Good Trainees	14	34	48
Poor Trainees	16	9	25
Total	30	43	73

Phi Coefficient = .336
X^2 = 8.242
P/2 .005

The data in the above table indicate a significant relationship between the test norms and the criterion for the sample.

2. Data Analysis for Comparing GATB Aptitude G with Otis Self-Administering Tests of Mental Ability (Higher Examination, Form B).

A Pearson product-moment correlation coefficient of .73 was obtained for the relationship between Aptitude G scores and scores made on the Otis Self-Administering Tests of Mental Ability (Higher Examination, Form B). This finding is consistent with the outcome of previous research on 150 high school seniors where a Pearson product-moment correlation coefficient of .76 was obtained for the relationship between Aptitude G scores and scores made on the Otis Self-Administering Tests of Mental Ability (Higher Examination, Form B).

Although not used in screening the trainees included in this study, an a priori norm of 95 on the Otis Self-Administering Tests of Mental Ability (Higher Examination, Form B) had been used in the past by the Colorado State Hospital in selecting trainees. A Phi Coefficient of .246 was obtained for the relationship between the Otis norm of 95 and the final criterion for this study. As indicated above, a Phi Coefficient of .336 was obtained for the relationship between the recommended GATB norms (G-90, V-100, Q-85, K-85) and the final criterion for this study. Therefore, a combination of GATB aptitudes was found to be a better predictor of training success than a norm of 95 on the Otis Self-Administering Tests of Mental Ability (Higher Examination, Form B).

A Phi Coefficient of .351 was obtained for the relationship between the final criterion and a combination of the recommended GATB norms (G-90, V-100, Q-85, K-85) and the norm of 95 on the Otis Self-Administering Tests of Mental Ability (Higher Examination, Form B). As indicated above, a Phi Coefficient of .336 was obtained for the relationship between the criterion and GATB norms alone. Therefore, the Otis norm of 95 adds practically no predictivity to the GATB norms.

VII. Conclusions

On the basis of the results of this study, Aptitudes G, V, Q and K with minimum scores of 90, 100, 85 and 85, respectively, have been established as B-1002 norms for the occupation of Psychiatric Technician 2-42.22. The equivalent B-1001 norms consist of G-95, V-100, Q-85 and T-80.

VIII. Determination of Occupational Aptitude Pattern

The data for this study met the requirements for incorporating the occupation studied into OAP-6 which is shown in Section II of the Guide to the Use of the General Aptitude Test Battery, January 1962.